

CLAIMS

1. An oscillating disc cutter including a cutting disc and a drive mechanism, the drive mechanism including a drive shaft to effect eccentric oscillation of the cutting disc and a radial bearing disposed to permit relative rotation between the drive shaft and the cutting disc, the cutter further including a first axial bearing disposed to react axial forces while accommodating induced rotation of the cutting disc when operatively engaged and to induce a rotational drag thereby limiting rotational speed of the cutting disc when free running.
2. An oscillating disc cutter according to claim 1 further including a second bearing to induce a predetermined axial load in the first bearing.
3. An oscillating disc cutter according to claim 2 wherein the second bearing substantially reacts the axial forces induced by the first bearing.
4. An oscillating disc cutter according to claim 2 or 3 wherein the first bearing is of relatively high friction, and the second bearing is of relatively lower friction.
5. An oscillating disc cutter according to any one of the claims 2 to 4 wherein the first bearing is a hydrostatic bearing.
6. An oscillating disc cutter according to any one of claims 2 to 5 wherein the second bearing is a fluid lubricated bearing.
7. An oscillating disc cutter according to claim 5 or 6 wherein the hydrostatic bearing substantially reacts the axial cutting forces in the operative cutting mode.
8. An oscillating disc cutter according to claim 7 wherein the hydrostatic bearing is oil operated.
9. An oscillating disc cutter according to claim 8 wherein the fluid bearing is pressurised.
10. An oscillating disc cutter according to claim 9 wherein pressure in the fluid bearing is maintained at a level such that a predetermined maximum running clearance in the hydrostatic bearing is maintained thereby inducing shear forces in the oil of the hydrostatic bearing.
11. An oscillating disc cutter according to claim 10 wherein the shear forces cause rotational drag in the bearing thereby limiting the rotational speed of the cutting disc in when free running.

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12. An oscillating disc cutter according to any one of claims 9 to 11 wherein the fluid bearing is pressurised with water.
13. An oscillating disc cutter according to claim 12 wherein the fluid bearing is takes the form of a water-pressurised annulus.
- 5 14. An oscillating disc cutter according to anyone of the preceding claims wherein the limited rotational speed of the cutting disc is 0 to 1500 rpm.
15. An oscillating disc cutter according to anyone of the preceding claims wherein the limited rotational speed of the cutting disc is 0 to 750 rpm.
- 10 16. An oscillating disc cutter according to anyone of the preceding claims wherein the limited rotational speed of the cutting disc is 0 to 100 rpm.